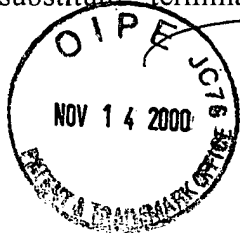


substitute --terminal--



1           2 (amended twice). A method of operating a touch screen digitizing system including a  
2 touch screen unit including a first resistive sheet with opposed first and second terminals and a  
3 second resistive sheet with opposed third and fourth terminals and an analog-to-digital converter  
4 having [first and second] a reference input terminal [terminals] to provide full-scale calibration of  
5 the digital output of the digital-to-analog converter to the full-scale analog outputs of the first and  
6 second resistive sheets irrespective of sharp variations in the resistances of the first and second  
7 resistive sheets and associated switches, the method comprising:

B/cont 8           (a)     coupling a first switch between a first reference voltage and the second  
9 terminal, and connecting a second switch directly between the first terminal and a second  
10 reference voltage when energizing the first resistive sheet and coupling a third switch between  
11 the first reference voltage and the fourth terminal, and connecting a fourth switch directly  
12 between the third terminal and the second reference voltage when energizing the second resistive  
13 sheet; [and]

14           (b)     connecting an input of the analog-to-digital converter to the third terminal  
15 while the first resistive sheet is energized and the second resistive sheet is not energized, and  
16 connecting the input to the first terminal while the second resistive sheet is energized and the first  
17 resistive sheet is not energized;

18 (c) operating a processor after power-up of the touch screen digitizing system  
19 to prompt a user to sequentially touch first and second permanently marked points on the touch  
20 screen;

21 (d) operating the processor to digitize the touched first and second  
22 permanently marked points and compare coordinates of the digitized touched first and second  
23 points with stored coordinates of the first and second permanently marked points, respectively;

24 (e) operating the processor to compute correction factors from differences  
25 between coordinates of the touched digitized first and second points and the stored coordinates,  
26 coordinates of the first and second permanently marked points, respectively; and

27 (f) operating the processor to correct coordinates of points on the touch screen  
28 which have been touched and are being digitized.

Bl  
cont

1 3 (amended twice). A touch screen digitizing system including a touch screen unit  
2 including a first resistive sheet with opposed x+ and x- terminals and a second resistive sheet  
3 with opposed y+ and y- terminals, and an analog-to-digital converter having [first and second] a  
4 reference input terminal [terminals], the improvement comprising in combination:

5 (a) a first switch coupled between a first reference voltage and the x- terminal,

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6 and a second switch connected directly between the x+ terminal and a second reference voltage  
7 for energizing the first resistive sheet;

8 (b) a third switch coupled between the first reference voltage and the y-  
9 terminal, and a fourth switch connected directly between the y+ terminal and the second  
10 reference voltage for energizing the second resistive sheet; [and]

11 (c) switching circuitry for coupling an input of the analog-to-digital converter  
12 to the y+ terminal while the first resistive sheet is energized and the second resistive sheet is not  
13 energized, and for coupling the input to the x+ terminal while the second resistive sheet is  
14 energized and the first resistive sheet is not energized; and

15 (d) a processor operative after power-up of the touch screen digitizing system  
16 to prompt a user to sequentially touch first and second permanently marked points on the touch  
17 screen, operating the processor to digitize the touched first and second permanently marked  
18 points and compare coordinates of the digitized touched first and second points with stored  
19 coordinates of the first and second permanently marked points, respectively, operating the  
20 processor to compute correction factors from differences between coordinates of the touched  
21 digitized first and second points and the stored coordinates of the first and second permanently  
22 marked points, respectively, and operating the processor to correct coordinates of points on the  
23 touch screen which have been touched and are being digitized.

In Claim 9, line 5, delete "first and second", substitute --a--, and after "input", delete "terminals", substitute --terminal--.

Please cancel Claim 10 without prejudice.

Please add the following claims:

1 ~~10~~ 11. A touch screen digitizing system including a touch screen unit including a first  
2 resistive sheet with opposed first and second terminals and a second resistive sheet with opposed  
3 third and fourth terminals, and an analog-to-digital converter having a reference input terminal,  
4 the improvement comprising in combination:

5 (a) a first switch coupled between a first reference voltage and the second  
6 terminal, and a second switch connected directly between the first terminal and a second  
7 reference voltage for energizing the first resistive sheet;

8 (b) a third switch coupled between the first reference voltage and the fourth  
9 terminal, and a fourth switch connected directly between the third terminal and the second  
10 reference voltage for energizing the second resistive sheet; and

11 (c) an analog-to-digital converter and switching circuitry for coupling a first  
12 input of the analog-to-digital converter to the third terminal while the first resistive sheet is  
13 energized and the second resistive sheet is not energized, and for coupling the first input to the

first terminal while the second resistive sheet is energized and the first resistive sheet is not energized, the analog-to-digital converter having a first reference terminal coupled to the second reference voltage, and a second reference terminal coupled to the first reference voltage,

wherein the analog-to-digital converter is a successive approximation analog-to-digital converter including a CDAC, a comparator coupled to an output of the CDAC, and a successive approximation register coupled to an output of the CDAC, and wherein the first input is coupled to a first input of the CDAC, the first input being selectively coupled by a fifth switch in the switching circuitry to a selected one of the first terminal and the third terminal, the first reference terminal being selectively coupled to the second reference voltage by coupling the first reference terminal to a corresponding one of the first terminal and the third terminal by means of a sixth switch in the switching circuitry, the second reference terminal being selectively coupled to the first reference voltage by coupling the second reference terminal to a corresponding one of the second terminal and the fourth terminal by means of a seventh switch in the switching circuitry.

11. A touch screen digitizing system including a touch screen unit including a first resistive sheet with opposed first and second terminals and a second resistive sheet with opposed third and fourth terminals, and an analog-to-digital converter having a reference input terminal, the improvement comprising in combination:

5 (a) a first switch coupled between a first reference voltage and the second  
6 terminal, and a second switch connected directly between the first terminal and a second  
7 reference voltage for energizing the first resistive sheet;

8 (b) a third switch coupled between the first reference voltage and the fourth  
9 terminal, and a fourth switch connected directly between the third terminal and the second  
10 reference voltage for energizing the second resistive sheet; and

11 (c) an analog-to-digital converter having a first input and a second input, and  
12 switching circuitry for coupling the first input to the third terminal while the first resistive sheet  
13 is energized and the second resistive sheet is not energized, for coupling the first input to the first  
14 terminal while the second resistive sheet is energized and the first resistive sheet is not energized,  
15 and for coupling the second input to the first reference voltage, the analog-to-digital converter  
16 having a first reference terminal coupled to the second reference voltage, and a second reference  
17 terminal coupled to the first reference voltage,

18 wherein the analog-to-digital converter is a successive approximation analog-to-  
19 digital converter including a CDAC, a comparator coupled to an output of the CDAC, and a  
20 successive approximation register coupled to an output of the CDAC, and wherein the first input  
21 is coupled to a first input of the CDAC and the second input is coupled to a second input of the  
22 CDAC, the first input being selectively coupled by a fifth switch in the switching circuitry to a  
23 selected one of the first terminal and the third terminal, the first reference terminal being  
24 selectively coupled to the second reference voltage by coupling the first reference terminal to a

25 corresponding one of the first terminal and the third terminal by means of a sixth switch in the  
26 switching circuitry, the second input and the second reference terminal being selectively coupled  
27 to the first reference voltage by coupling the second input and the second reference terminal to a  
28 corresponding one of the second terminal and the fourth terminal by means of a seventh switch in  
29 the switching circuitry.

B2  
cont

1 <sup>12</sup>~~13.~~ A touch screen digitizing system including a touch screen unit including a first  
2 resistive sheet with opposed first and second terminals and a second resistive sheet with opposed  
3 third and fourth terminals, and an analog-to-digital converter having a reference input terminal,  
4 the improvement comprising in combination:

5 (a) a first switch coupled between a first reference voltage and the second  
6 terminal, and a second switch connected directly between the first terminal and a second  
7 reference voltage for energizing the first resistive sheet;

8 (b) a third switch coupled between the first reference voltage and the fourth  
9 terminal, and a fourth switch connected directly between the third terminal and the second  
10 reference voltage for energizing the second resistive sheet; and

11 (c) an analog-to-digital converter having a first input and a second input, and

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12 switching circuitry for coupling the first input to the third terminal while the first resistive sheet  
13 is energized and the second resistive sheet is not energized, for coupling the first input to the first  
14 terminal while the second resistive sheet is energized and the first resistive sheet is not energized,  
15 and for coupling the second input to the first reference voltage, the analog-to-digital converter  
16 having a first reference terminal coupled to the second reference voltage, and a second reference  
17 terminal coupled to the first reference voltage,

*B2*  
*cancel*  
18 wherein the analog-to-digital converter is a successive approximation analog-to-  
19 digital converter including a CDAC, a comparator coupled to an output of the CDAC, and a  
20 successive approximation register coupled to an output of the CDAC, and wherein the first input  
21 is coupled to a first input of the CDAC and the second input is coupled to a second input of the  
22 CDAC, the first input being selectively coupled by a fifth switch in the switching circuitry to a  
23 selected one of the first terminal and the third terminal, the first reference terminal being  
24 selectively coupled to the second reference voltage by coupling the first reference terminal to a  
25 corresponding one of the first terminal and the third terminal by means of a sixth switch in the  
26 switching circuitry, the second input being selectively coupled to the first reference voltage by  
27 coupling the second input to a corresponding one of the second terminal and the fourth terminal  
28 by means of a seventh switch in the switching circuitry.

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